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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,186	07/19/2001	Hideji Tajima	10287.46	9114
27683	7590	12/14/2004		
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			EXAMINER CROSS, LATOYA I	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/909,186

Applicant(s)

TAJIMA, HIDEJI

Examiner

LaToya I. Cross

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-42 is/are pending in the application.
- 4a) Of the above claim(s) 11-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-33 and 36-42 is/are rejected.
- 7) ☒ Claim(s) 34 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This Office Action is in response to Applicants' amendments filed on September 23, 2004. Claims 11-42 are pending. Claims 11-14 are withdrawn from consideration as being directed to non-elected subject matter.

#### *Withdrawal of Rejections from Previous Office Action*

- The anticipation rejection over Slovacek et al is withdrawn in view of Applicants' amendment to recite an unrolled configuration and a rolled configuration.
- Likewise, the obviousness rejections over Slovacek et al and other prior art is also withdrawn.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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3. Claims 15-33, 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,057,100 to Heynecker in view of US Patent 6,482,593 to Walt et al.

Heynecker discloses oligonucleotide arrays. The oligonucleotide arrays are fibers, which comprise a support having oligonucleotides attached thereto. Oligonucleotides are substances for detection of analytes in a sample. The fiber support is a base member to which the oligonucleotides are attached and is disclosed as being made from materials such as polyethylene (col. 3, lines 16-35). At col. 4, lines 14-15, Heynecker teaches that the fiber is "flexible". The arrays have at least two different oligonucleotides attached, preferably more than two (col. 4, lines 17-22). Heynecker further discloses that each oligonucleotide species is arranged in distinct linear rows (side by side) to form an immobilized oligonucleotide strip, i.e. an unrolled configuration (col. 4, lines 47-56). With respect to the rolled configuration, Heynecker discloses fibers being spiraled around a center core, as shown in figure 3D. Further, Heynecker discloses "spacer fibers" to aid in alignment. With respect to the tubular member, Heynecker discloses a casing (105), which houses the fibers that are coiled around the core member. Heynecker discloses that the disks may be rotated through a solution of test sample (col. 6, lines 28-37). The reference also discloses using fluorescent labels to detect the target sequences, wherein a laser source can be used for detection.

Heynecker differs from the instantly claimed invention in that there is no disclosure of oligonucleotides are in a fixed location on the fiber, wherein the location corresponds with a particular chemical structure.

Guide  
Frame

Walt et al teach biosensors for detecting oligonucleotide species in a fluid sample. the biosensors of Walt et al comprises an optical fiber (12) having oligonucleotides attached to the fiber strand (col. 13, lines 24-31, 14, lines 62-64 and col. 15, lines 28-41, Walt et al

Fiber  
Array

teach that each oligonucleotide deposit on the fiber serves as one fixed probe immobilized at a predetermined spatial position. Further, Walt et al teach an identifying label, such as a dye, on the fiber to reflect the presence of a target species (col. 18, line 60 – col. 19, line 11).

It would have been obvious to one of ordinary skill in the art to have the oligonucleotides of Heynecker to be attached to the fiber at predetermined locations to allow detection at a particular location to determine the presence of a particular analyte in the sample. Where the oligonucleotides are positioned at specific locations on the fiber, the user need only observe the presence of a reaction at that location to determine the presence of a particular analyte in the sample.

Also, Heynecker does not explicitly teach that the casing (105) is made of permeable material. However, such would have been obvious to one of ordinary skill in the art because the casing will be rotated through a sample solution. Thus, if the casing were made of permeable material, then it can be assured that the sample solution reaches the reaction sites on the fibers, providing for accurate detection.

#### *Allowable Subject Matter*

4. Claims 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Citation of Relevant Prior Art*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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US Patent 6,649,404 to Vann et al teach fibers having chemical species immobilized thereon. The fibers may be coiled around a hub to allow for easier detection. See figures 17-19.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 571-272-1256. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jill Warden  
Supervisory Patent Examiner  
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